

PATENT COOPERATION TREATY

PCT

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P16361WO1		FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE 2002/001305	International filing date (day/month/year) 28.06.2002	Priority date (day/month/year) - - -	
International Patent Classification (IPC) or national classification and IPC H01P 1/20 // H05K 5/03			
Applicant Telefonaktiebolaget LM Ericsson (publ) et al			

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 6 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
- This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input checked="" type="checkbox"/>	Box No. VII	Certain defects in the international application
<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand 25.11.2003	Date of completion of this report 28.05.2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Anna Malmberg/mj Telephone No. +46 8 782 25 00

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1(b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1 - 8 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 9 - 10 received by this Authority on 11.05.2004

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1/4 - 4/4 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-11</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-11</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-11</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

This report is based on the claims as filed with the letter of 12.05.2004.

Prior art

Reference is made to the following documents:

D1:US 4 278 957 A
D2:US 4 100 504 A
D3:EP 0 290 617 A1

From D1 a filter arrangement is known, which comprises a filter chassis (11) and a filter top-cover plate (cover) (15). The filter top-cover plate has an additionally function as circuit board for electrically connected components. The filter chassis and the circuit board are galvanically coupled by means of coupling objects, so called taps (21A, 21B, 21C), which constitute an integrated part of the filter chassis. The inventive concept is to simplify the assembling operation and eliminate the need for conductor cables between the taps and the circuits. (See for example the abstract, column 2, line 48 - column 3, line 48 and figure 1.)

From D2 a filter arrangement is known, which comprises a housing (60) and rod resonators. The resonators are integrally formed by the cylindrical walls of an aluminium housing, the top portion of which is formed of a plated printed circuit board. The face of the printed circuit which faces the cylindrical cavities of the resonators is plated with copper to form the upper surface of each resonator. The other side of the printed circuit board is selectively plated with copper

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

layers which extend through the board (galvanic contact) to the lower layer to provide an extensive ground plane. The inventive concept of the invention is to provide a band rejection filter for a microwave transmission system and which provides a reduction in the amount of packaging required for the radio hardware. (See for example the abstract, column 1, line 31 - 47, and column 3, line 20 - 60.)

Document D3 only represents the general state of the art.

Statement of reason

The invention according to claims 1-11 relates to a filter arrangement and a method for assembling of such an arrangement. The arrangement consists of a filter chassis and a cover which is combined with a circuit board (hereafter called cover/circuit board). The cover can consist of a printed circuit board of electrically interconnected layers. Pegs are mounted to the chassis which contact the above lying cover/circuit board when the cover/circuit board is mounted on the filter chassis. This solves problems with filter arrangements that are not very compact and it is often hard to assemble them and make contact between the different units of the arrangement in an efficient way. The invention solves this problem and in this way there are no external cables needed to establish the contact between the filter chassis and the circuit board and a common ground level is achieved.

Neither one of the documents D1 and D2 disclose an arrangement where more than one circuit board is arranged on the filter chassis. Also neither of the documents D1 and D2 disclose an arrangement where the cover consists of a printed circuit board of electrically interconnected layers for applying an electrical pattern structure and for providing a common ground for said printed circuit board and said filter chassis.

Consequently, neither one of the documents D1 or D2 disclose an arrangement according to claims 1-11. Therefore, what is mentioned in claims 1-11 is novel and discloses an inventive step. The invention according to claims 1-11 is industrially applicable.

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Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

It is unclear from the description of how the inductive and capacitive couplings, which are mentioned in claims 5-6, are intended to function. The cover (22) is supposed to act as a mechanical and electrical shielding for the chassis(21)/cavities(211). It is therefore hard to see how it is possible to achieve a common ground level due to inductive and capacitive coupling between the filter chassis and the printed circuit boards integrated with the cover. It rather seems to as a "floating" ground level appears, and not a fixed ground level.

It is noticed that the reference sign (45) is used both for the interconnected layers (claim 1) and for the outer shielding cover (claim 10). The same is valid for reference sign (22) in claim 1 and claim 5; reference sign (42) in claim 1 and for example 5; reference sign (41) in claim 1 etc. PCT Rule 6.2 (b) says that if inclusion of reference signs does not particularly facilitate quicker understanding of a claim, it should not be made. Also, it is desirable that a reference sign only refers to one and the same feature, and not for several different features. The reference signs in the claims should therefore be removed and/or the same reference signs should be used for the same features.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

What is mentioned in claim 10; that the electrical components on each two boards are directed towards each other, seems not to be fully supported by the description as required by PCT Article 6.